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VIA E-MAIL AND HAND DELIVERY

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Re: Comments on the Initial Study/Negative Declaration on the Proposed California Mechanical Code Change Allowing Plenum Return Air in Certain Areas of OSHPD 3 Clinics

Dear Mr. Gall:

On behalf of the Coalition for Safe Building Materials ("Coalition") and the Joint Committee on Energy and Environmental Policy, this letter provides comments on the September 2015 Initial Study/Negative Declaration ("IS/ND") for the Proposed California Mechanical Code Change Allowing Plenum Return Air in Certain Areas of OSHPD 3 Clinics ("Project").

The Office of Statewide Health Planning and Development ("OSHPD") has prepared the IS/ND as the lead agency under the California Environmental Quality Act ("CEQA"). The IS/ND states that its review is limited to the approval of plenum return air in outpatient medical clinics under the OSHPD 3 jurisdiction.

The information that is provided by the attached expert comments and appendices provides substantial evidence that the approval of plenum return air in outpatient medical clinics may result in significant public health and environmental impacts. The Project will reduce protections against exposure to infectious disease and harmful contaminants for the very populations most at risk for encountering

and falling ill from these pathogens. The proposed regulations will also create noise impacts that could impact the privacy of patients, will increase energy use in healthcare facilities, and will increases fire risks.

It is critical to the health and safety of the California public that the potential impacts of this Project be fully disclosed, evaluated and mitigated before this code change is approved. Because substantial evidence exists that these impacts may be significant, OSHPD's failure to evaluate these impacts in an EIR violates CEQA. The IS/ND must be withdrawn and an EIR must be prepared and circulated for public review and comment.

I. INTEREST OF THE COALITION

The Coalition for Safe Building Materials is a coalition of environmental, consumer, public health, and labor organizations that have long advocated for effective, safe and environmentally-friendly building standards. The environmental, consumer, public health, and labor organizations that make up the Coalition represent thousands of Californians concerned about the safety and effectiveness of new building standards. The Coalition and its members have a long history of participating in proceedings of the California Building Standards Commission to advocate for pre-approval review of environmentally hazardous, potentially unsafe and substandard building standard proposals.

Petitioners' past advocacy has resulted in environmental review of many building materials and methods that have been proposed to reduce costs at the expense of maintaining longstanding safety and performance standards. These reviews have demonstrated that many of these proposals have presented undisclosed dangers to the public. These dangers have included toxic chemicals leaching into drinking water, increased fire safety risks, degradation of indoor air quality, health risks to construction workers, increased air pollution and reduced energy efficiency. As a result of these reviews, industry standards have been strengthened and restrictions or mitigation requirements have been adopted to better protect, workers, occupants and the general public from potential impacts related to proposed changes in building standard requirements.

The Joint Committee on Energy and Environmental Policy is made up of the California sheet metal workers' local unions[1] and more than 25,000 technicians working for over 600 contractors throughout California. The mission of the Joint Committee on Energy and Environmental Policy is to promote responsible environmental, indoor air quality and energy policy in California as it pertains to and impacts the HVAC industry. JCEEP's members have over 15 training facilities throughout the state and thousands of workers being trained daily in HVAC specialties, such as testing, adjusting and balancing, commissioning, green building design, energy efficiency, sound and vibration control, and indoor air quality.

The sheet metal workers' unions have long advocated for and participated in the development of building standards for mechanical systems in order to safeguard the public health, achieve energy efficiency and ensure performance and durability of systems. For example, in the 1980's, the sheet metal workers unions and their contractors were among the first to bring attention to the problem of sick building syndrome, often diagnosed when buildings were made energy efficient to the detriment of the indoor environment of the building. Sick building syndrome causes are often attributed to problems with the HVAC systems.

JCEEP was established to continue this tradition of advocacy in California. JCEEP was formed on the premise that air handling systems need to be designed not just to manage comfort levels of indoor air, but also to protect against contaminants and health threats and to ensure energy efficiency.

II. LEGAL STANDARD FOR PREPARATION OF AN EIR

CEQA is designed to inform decision-makers and the public about the potential, significant environmental effects of a project.[2] "CEQA's fundamental goal [is] fostering informed decision-making."[3] "The purpose of CEQA is not to generate paper, but to compel government at all levels to make decisions with environmental consequences in mind."[4]

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[1] The sheet metal workers unions are locals of the International Association of Sheet Metal, Air, Rail & Transportation Workers ("SMART").
[2] 14 Cal. Code Regs. ("CEQA Guidelines") § 15002, subd. (a)(1).
[3] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 402.
[4] *Bozung v. LAFCO* (1975) 13 Cal.3d 263, 283.

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR, except in certain limited circumstances.[5] The EIR is the very heart of CEQA.[6] The EIR acts as an "environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return."[7] The EIR aids an agency in identifying, analyzing, disclosing, and, to the extent possible, avoiding a project's significant environmental effects through implementing feasible mitigation measures.[8] The EIR also serves "to demonstrate to an apprehensive citizenry that the [agency] has analyzed and considered the ecological implications of its action."[9] Thus, an EIR "protects not only the environment but also informed self-government."[10]

An EIR is required if "there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment."[11] The EIR aids an agency in identifying, analyzing, disclosing, and, to the extent possible, avoiding a project's significant environmental effects through implementing feasible mitigation measures.[12]

In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact, thus requiring no EIR. Because "[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process" by allowing the agency to dispense with the duty to prepare an EIR, negative declarations are allowed only in cases where there is not even a "fair argument" that the project will have a significant environmental effect.[13]

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[5] See, e.g., Pub. Resources Code, § 21100.
[6] *Dunn-Edwards v. Bay Area Air Quality Management Dist.* (1992) 9 Cal.App.4th 644, 652.
[7] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1220.
[8] Pub. Resources Code § 21002.1(a); CEQA Guidelines § 15002(a), (f).
[9] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86.
[10] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.
[11] Pub. Resources Code, § 21080, subd. (d) (emphasis added); CEQA Guidelines, § 15064; see also *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927; *Mejia v. City of Los Angeles* (2005) 13 Cal.App.4th 322.
[12] Pub. Resources Code, § 21002.1, subd. (a); CEQA Guidelines, § 15002, subd. (a) & (f).
[13] *Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440; Pub. Resources Code, §§ 21100, 21064.

In certain circumstances, a project with potentially significant impacts can be modified by the adoption of mitigation measures to reduce the impacts to a level of insignificance. In such cases, an agency may satisfy its CEQA obligation by preparing a mitigated negative declaration.[14] A mitigated negative declaration, however, is also subject to the fair argument standard. Thus, an EIR is required whenever substantial evidence in the record supports a "fair argument" that significant impacts may occur even with the imposition of mitigation measures.

The "fair argument" standard is an exceptionally "low threshold" favoring environmental review in an EIR rather than a negative declaration.[15] The "fair argument" standard requires preparation of an EIR, if any substantial evidence in the record indicates that a project may have an adverse environmental effect.[16] As a matter of law, substantial evidence includes both expert and lay opinion.[17] Even if other substantial evidence supports the opposite conclusion, the agency nevertheless must prepare an EIR.[18] Under the "fair argument," CEQA always resolves the benefit of the doubt in favor of the public and the environment.

III. SUBSTANTIAL EVIDENCE ESTABLISHES A FAIR ARGUMENT THAT ALLOWING PLENUM RETURNS IN OSHPD CLINICS MAY RESULT IN SIGNIFICANT ENVIRONMENTAL IMPACTS

Currently, the 2013 California Mechanical Code § 407.4.1.4 prohibits healthcare clinics (and all other healthcare facilities under OSHPD's building standards jurisdiction) from using the space above a ceiling as an outside-air, relief-air, supply-air, exhaust air, or return-air plenum. In addition, the 2010 California Mechanical Code § 602.1 prohibits healthcare clinics (and all other healthcare facilities under OSHPD's building standards jurisdiction) from using concealed spaces or independent construction within buildings as ducts or plenums. OSHPD proposes amending the 2013 California Mechanical Code to exempt OSHPD 3

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[14] Pub. Resources Code, § 21064.5; CEQA Guidelines, § 15064, subd. (f)(2).
[15] *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 928.
[16] CEQA Guidelines, § 15064, subd. (f)(1); *Pocket Protectors v. City of Sacramento, supra*, 124 Cal.App.4th at 931.
[17] Pub. Resources Code, § 21080, subd. (e)(1); CEQA Guidelines, § 15064, subd. (f)(5).
[18] *Arviv Enterprises v. South Valley Area Planning Comm*. (2002) 101 Cal.App.4th 1333, 1346; *Stanislaus Audubon v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597.

clinics from both of these prohibitions, allowing the use of concealed spaces or independent construction within buildings as ducts or plenums.

Substantial evidence exists that these exemptions are likely to increase health and safety risks to patients and other building occupants, especially if the clinic is located in an existing building.[19] Substantial evidence also exists that these exemptions may also result in increased fire safety risks, increased energy consumption and reduced patient privacy.[20] This evidence includes the attached expert comments of indoor air quality and healthcare ventilation expert Dr. James Woods,[21] along with the numerous additional studies, reports and other documents cited by this letter.

Substantial evidence includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.[22] Under the Guidelines, substantial evidence means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Moreover, as a matter of law, "substantial evidence includes … expert opinion."[23] As a leading CEQA treatise explains: "when experts disagree over the significance of an impact, the lead agency must treat the effect as significant and prepare an EIR."[24]

Dr. Wood's expertise is unimpeachable. Dr. Woods is an Indoor Environments Consultant, registered professional mechanical engineer and the former Executive Director of the Building Diagnostics Research Institute.[25] In 1997, he retired as the William E. Jamerson Professor of Building Construction at Virginia Polytechnic Institute and State University. Previously, he served as Senior Engineering Manager and Senior Staff Scientist at Honeywell (1983-1989). From 1974 to 1983, he was a Professor of Mechanical Engineering and Architecture at Iowa State University, where he established the Building Energy Utilization Laboratory and the Center for Advancement of Building Technologies. He has over

[19] Dr. Woods Comments.
[20] Dr. Woods Comments.
[21] Dr. Woods Comments.
[22] Pub. Res. Code § 21082.2(c).
[23] Pub. Resources Code § 21080(e)(1); CEQA Guidelines § 15064(f)(5).
[24] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 6.51, citing CEQA Guidelines § 15064(g), see also, §15064(f)(5).
[25] See Curriculum Vitae of Dr. James Woods.

49 years experience in energy and environmental analyses, and has been responsible for more than 30 research projects and 250 investigations related to indoor environmental quality, energy utilization, and human responses in residences, office buildings, public assembly and monumental buildings, hospitals, schools, laboratories, and commercial aircraft. His body of work includes the publication of forty invited papers, fifty-five peer reviewed papers, fifty-one other articles and presentations, and six books that address the interactions between environmental control, system performance, and economic performance of buildings.

Dr. Woods is a Fellow and Life Member of the American Society of Heating Refrigerating, and Air Conditioning Engineers ("ASHRAE"). He is a former member of the ASHRAE Board of Directors and has chaired and served on numerous ASHRAE committees related to indoor air quality, environmental health, building energy utilization, industrial air conditioning, physiology and human environment, thermal conditions for human occupancy, and ventilation and infiltration requirements. Dr. Woods was the principle investigator for an ASHRAE sponsored project on ventilation requirements in hospital operating rooms. Dr. Woods was also the principle investigator on a project on hospital ventilation requirements that was sponsored by the American Hospital Association. He has also participated in numerous projects and chaired several committees for the National Institute of Building Sciences.

Dr. Woods has provided his expert opinion that removing the restrictions on use of plenum returns in OSHPD 3 clinics will increase health and safety risks to building occupants, increase fire safety risks, and increase energy costs. Dr. Wood's testimony thus triggers the requirement to prepare an EIR on the potential impacts of this proposal.

Dr. Wood's testimony is consistent with the analysis contained in the ASHRAE HVAC Design Manual for Hospitals and Clinics. The Design Manual explains that ducted returns are necessary to protect the airstream from direct exposure to such potential plenum conditions as accumulated dust, microbes or odors generated by wet materials (from piping leaks, roof leaks, or floor leaks in

multi-story facilities), rodent droppings, fibers from deteriorated flame proofing or equipment, and smoke from smoldering wiring insulation or other sources during a fire.[26]

A. Increased Risk of Pathogen Spread

The importance of conservatively designed HVAC systems in healthcare occupancies to help protect against the spread of airborne contaminants and infectious diseases cannot be overstated. In its foreword to ANSI/ASHRAE/ASHE Standard 170-2008, *Ventilation of Health Care Facilities*, ASHRAE states:

> Ventilation systems and designs for health care facilities are intended to provide a comfortable environment for patients, health care workers, and visitors while diluting, capturing and exhausting airborne contaminants including potentially infectious airborne agents such as M. tuberculosis. Without high-quality ventilation in health care facilities, patients, health care workers, and visitors can become exposed to contaminants through normal respiration of particles in the air. Poorly ventilated health care facilities may increase the concentration of airborne contaminants including fungi or mold, which may cause allergic responses in even healthy workers and occupants. Some patients are profoundly immunosuppressed for prolonged periods and if exposed, are highly susceptible to infection from fungi. For such patients, fungal spores become invasive pathogens and lead to high rates of severe morbidity and mortality. For all these reasons, and considering the various occupancies and patient populations, great care must be taken in the design of health care ventilation systems.[27]

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[26] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 97, § 9.5.2. The IS/ND claims that this guidance on ducted returns does not apply to non-pressurized areas of a clinic because it cites to ASHRAE 170 for ventilation guidance. This claim is speculative. While ASHRAE 170 does not require ducted returns, the basis for its guidance is the difficulty in maintaining mandatory pressure differentials if using plenum returns. The quoted discussion in the ASHRAE HVAC Design Manual for Hospitals and Clinics, however, refers to the health risks from the exposure to contaminants in the plenum area, including dust, mold, rodent droppings or smoke from an electrical fire within the plenum area.

[27] ASHRAE Standing Standard Project Committee 170 (SSPC 170), Ventilation of Health Care Facilities, Foreword (revised May 28, 2011).

The IS/ND claims that a reasonable inference can be made that the use of plenum return air as compared to fully ducted systems presents no greater risks of hazardous pathogen transmission.[28] This claim is based upon speculation and ignores substantial evidence to the contrary. Moreover, this claim applies the incorrect standard of review for a negative declaration. A negative declaration is improper, and an EIR is required, whenever substantial evidence in the record supports a "fair argument" that significant impacts may occur, *even if other substantial evidence supports the opposite conclusion*.[29]

The question before OSHPD is thus not whether a reasonable inference can be made from the available evidence that the use of plenum return air as compared to fully ducted systems presents no greater risks of infectious disease transmission. Rather the question is whether any substantial evidence supports a reasonable inference that the use of plenum return air as compared to fully ducted systems creates a greater risk of hazardous contaminant or infectious disease transmission.

In the case at hand, the attached comments of Dr. Woods provide substantial evidence that the proposed approval of plenums in OSHPD 3 clinics creates a greater risk of hazardous contaminant or infectious disease transmission than the use of ducted returns. Dr. Woods testifies that HVAC systems that rely on plenums rather than ducts have a higher risk of spreading dangerous pathogens and making occupants sick.[30]

While ductwork has a singular function of transporting supply, return, or exhaust air with minimum differences in thermal or contaminant conditions between their points of connection (e.g., between the HVAC equipment and the occupied spaces), plenums and chases (e.g., concealed building spaces) have multiple functions: distribution of electrical services; electronic signals; domestic, hydronic and process water; condensate and wastewater; specialty gases; and supply and return air. As a result, unducted supply or return air in plenums and chases is usually mixed with air from other pathways that contain thermal or contaminant sources.[31]

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[28] IS/ND at p. 42.
[29] *Stanislaus Audubon v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597.
[30] Dr. Woods Comments.
[31] Dr. Woods Comments.

Return air plenums are also more likely to cause pressure imbalances in the system and increase the risks of infection. Return air plenums adjacent to exterior walls or roofs are likely to incur moisture transfer and air leakage, which increases the risks of amplification of microorganisms and infection.[32] Room-side elements of exterior walls (e.g., drywall) and demising walls typically are not sealed to the deck above a return air plenum, and become "concealed spaces" and pathways through which moisture and microorganisms (e.g., aspergillus sp.) can be transported to the return air plenums. This increases the risk of airborne pathogen exposure to patients and other occupants, especially in existing buildings.[33]

The pathogens that may be transported through a return air plenum system include both (1) airborne infectious diseases from clinic patients and (2) dust, mold and other contaminants from the plenum space itself.

1. Airborne Infectious Diseases

Numerous airborne infectious particles have been shown to be transported between spaces by ventilation systems, including TB, measles, Varicella zoster, and some fungal spores.[34] The IS/ND attempts to dismiss the significance of the increased risk of airborne infectious disease by assuming that OSHPD 3 clinic patient exam rooms are unlikely to be an outbreak source for airborne infectious diseases. This assumption is not supported by any evidence and is contradicted by the expert testimony of Dr. Woods.[35]

"A primary source of pathogenic microorganisms in the health care environment is the patient suffering from contagious disease."[36] Infectious agents transmitted via the airborne pathway include tuberculosis, measles, chickenpox, SARS and influenza.[37] Airborne outbreaks of infectious diseases are a significant concern in clinic settings and do occur.[38] Outbreaks of TB and other airborne

[32] Dr. Woods Comments.
[33] Dr. Woods Comments.
[34] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 130, § 12.2.3.
[35] This claim is also contradicted by the IS/ND itself, which states elsewhere that treatment rooms and examination rooms are "likely to have significant exposure to infectious patients." IS/ND at p. 43.
[36] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 28, § 4.2.1.
[37] Dr. Woods Comments; see also IS/ND at pp. 28-32.
[38] Dr. Woods Comments; see also IS/ND at p. 33.

infectious diseases have been traced to physician offices or clinics. In one study of 53 infection clusters associated with outpatient settings, 10 clusters were associated with airborne or droplet transmission among patients and health care workers.[39]

Because the basic principles of disease transmission and prevention are the same regardless where a patient is seen, a patient with an airborne infectious disease will be just as infectious in an OSHPD 3 patient exam room as in a hospital or in an airborne infection isolation room.[40] However, the risk of spread of this infection through ventilation systems will be greater in the exam room setting because it has a less protective environment. The proposal to allow plenum air returns in patient exam rooms and other unpressurized patient care areas will increase the risk of airborne infection spread from these already less protected patient care areas.[41]

The IS/ND argues that implementation of "recommended" (but not mandatory) administrative controls such as early detection, isolation and establishment of an infectious control infrastructure "should minimize" the potential for the transmission of chicken pox, measles, influenza and TB from OSHPD 3 clinic patient exam rooms.[42] This conclusion is speculative, fails to determine that these measures would minimize the increased risk below a level of significance, and improperly relies upon the uncertain implementation of vague and voluntary measures.

Contrary to the IS/ND's assumption, substantial evidence exists that early detection is often not possible. To the contrary, the Association for Professionals in Infection Control and Epidemiology ("APIC") warns that patients with unrecognized infectious diseases are often seen in clinics. APIC has found that "Infectious diseases account for 20-30% of physician office visits and there have been multiple outbreaks of measles, tuberculosis, and other infectious diseases traced to physician

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[39] IS/ND at pp. 32-33.
[40] Friedman & Petersen, Association for Professionals in Infection Control and Epidemiology (APIC), *Infection Control in Ambulatory Care* (2004) at p. 2.
[41] Dr. Woods Comments. While the Proposed Amendments allow OSHPD 3SE clinics to have airborne infection isolation rooms, OSHPD 3SE clinics are not required to have these rooms. Without airborne infection isolation rooms, occupants in these clinics and clinic buildings will not be protected from those patients with airborne infectious diseases.
[42] IS/ND at pp. 36-37.

office or clinics."[43] Acute infection of the respiratory tract is the most common reason for consulting a physician.[44] Early symptoms of highly infectious airborne diseases are identical to symptoms from many other sicknesses, including the common cold. Accordingly, carriers of airborne infectious diseases may be infectious before any identifying symptoms become evident.[45]

As a result, healthcare personnel often "make multiple contacts with undiagnosed patients before they are recognized as infectious."[46] The IS/ND, itself, acknowledges that patients with TB often receive care at public health and community clinics "prior to diagnosis and treatment."[47] APIC thus warns that there needs to be an *increased* focus on infection prevention and control programs in these settings – not a decreased emphasis as proposed by this regulation.[48]

Even if early diagnosis were possible, isolation is not effective if a clinic does not have an airborne infection isolation room. Contrary to the IS/ND's assumption, OSHPD 3 clinics are not required to have such rooms or otherwise establish an infectious control infrastructure. Even in clinics that do have infectious disease control infrastructure, the IS/ND provides no evidence that it is common practice to see patients with influenza in an airborne infection isolation rooms. Patients go to clinics with the flu almost every day and are rarely seen anywhere other than a patient exam room.

Accordingly, not only is there substantial evidence that the Project may increase the risk of airborne infection spread, the IS/ND's conclusion to the contrary

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[43] Friedman & Petersen, Association for Professionals in Infection Control and Epidemiology (APIC), *Infection Control in Ambulatory Care* (2004) at pp. 1, 56.
[44] Friedman & Petersen, Association for Professionals in Infection Control and Epidemiology (APIC), *Infection Control in Ambulatory Care* (2004) at pp. 1, 56.
[45] Friedman & Petersen, Association for Professionals in Infection Control and Epidemiology (APIC), *Infection Control in Ambulatory Care* (2004) at p. 7.
[46] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 218, § D.4 (healthcare personnel "make multiple contacts with undiagnosed patients before they are recognized as infectious").
[47] IS/ND at p. 36.
[48] Friedman & Petersen, Association for Professionals in Infection Control and Epidemiology (APIC), *Infection Control in Ambulatory Care* (2004) at p. 1.

is speculative and not supported by substantial evidence.[49] An EIR must be prepared to evaluate this impact.

2. Contaminated Environments in Plenum Areas

The IS/ND also improperly dismisses evidence that allowing Plenum returns in clinics will increase health risk to immune-compromised patients due to the fact that plenum areas are often contaminated with dusts, mold spores, rodent droppings and microorganisms from dead pests and other sources.[50] These hazardous environmental conditions are commonly found in plenums, particularly in older buildings that may be converted to clinic occupancies.[51] When return air plenums are utilized instead of ducted returns, these contaminants are readily aerosolized and drawn into the return air of the HVAC system and then distributed directly into occupied spaces throughout the building.[52] Contaminated return air plenums and chases have been identified as sources of illness and infections to patients and building occupants.[53] Above-ceiling plenums are also more prone to disturbance by maintenance activities that could release opportunistic fungi or allergens into a return airstream, including opportunistic microbes such as *Aspergillus* that are a frequent component of building dust.[54]

The IS/ND's assumption that plenum returns have less potential for contamination associated with fungal buildup is also not supported by substantial evidence.[55] The evidence cited merely indicates that ducted returns are not immune to fungal buildup or other contamination concerns. That is not the same as demonstrating that ducted returns pose an equal or greater risk for causing airborne diseases than plenum returns. Moreover, dust, mold and fungus buildup in plenums are more likely to be entrained into the air due to maintenance or construction work in the plenum space. Buildup within a ducted return will not be disturbed by such activities and thus poses less of a risk.

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[49] OSHPD's response to a Public Record Act request for all documents supporting the Proposed Amendments did not include any studies or reports that would support a finding that OSHPD 3SE clinics are unlikely to see patients with undiagnosed airborne infectious diseases.
[50] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 97 § 9.5.2.
[51] Dr. Woods Comments.
[52] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 97 § 9.5.2.
[53] Dr. Woods Comments.
[54] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at pp. 97-98, §§ 9.5.2, 9.5.3.
[55] IS/ND at p. 43.

Aspergillosis fungi, for example, are common health-care-acquired pathogens that are often traced to absorbent building materials such as ceiling tiles, false ceilings, or fireproofing materials, all of which are exposed in plenums.[56] Numerous outbreaks of *Aspergillus* infections have been reported in hospital settings, most commonly associated with construction or renovation projects and infection to immunocompromised patients.[57]

A significant percentage of OSHPD 3 clinic patients are likely to be immune-compromised and at greater risk of contracting airborne infectious diseases through exposure to aeroallergens, aerosolized fungi and bacteria, and viruses within the clinic.[58] Immune-compromised patients have the greatest risk of infection by airborne microorganisms, including persons with diabetes and persons with respiratory illnesses such as asthma or emphysema.[59] Diabetes rates in California are now at near epidemic levels, having risen more than 38% in the last decade. In Tulare County, over 12% of adults have diabetes.[60] Asthma rates in California are similarly alarming. Since 2001, the percent of Californians diagnosed with asthma has increased from 11.3% to 13%.[61] The percentages of children in California diagnosed with asthma range from a high of over 30% in rural Kings County to a low of approximately 8% in Orange County, with the statewide mean of nearly 15%.[62] Accordingly, the Proposed Amendments will reduce protections against the spread of airborne infectious pathogens in clinics that will regularly serve the very populations most at risk from these pathogens.

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[56] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)*, (2003) at pp. 6-7 & Table 2.
[57] IS/ND at p. 34.
[58] Dr. Woods Comments. citing Kowalski & Bahnfleth, *Airborne Respiratory Diseases and Mechanical Systems for Control of Microbes*, HPAC Journal (July 1998) at pp 34-48.
[59] *Id.* at p. 6.
[60] Lin, California Watch, Californians Growing Heavier, More Obese and Diabetic (September 1, 2010), http://californiawatch.org/print/4405.
[61] Jewett, California Watch, *Asthma Hits State's Poor the Hardest* (Dec. 17, 2010) http://californiawatch.org/dailyreport/asthma-hits-states-poor-hardest-7539.
[62] California Health Interview Survey, Lifetime Childhood Asthma Prevalence (2009), http://www.centralcalasthma.org/index.php?id=58.

The IS/ND acknowledge that diseases such as aspergillosis could occur during construction and renovation activities in clinic settings if immunocompromised patients are present.[63] The IS/ND dismisses the significance of this risk, however, on the grounds that precautions could be taken by preparing a construction or demolition plan to minimize the dust generated and by preventing dust infiltration into patient care areas through the use of air tight plastic barriers and negative pressure ventilation.[64] The reliance on these measures is speculative.

No evidence that such precautions are required to be, or even likely to be implemented, is provided. Indeed, one such recorded outbreak of aspergillosis occurred when dust was disturbed during the change out of a filter in a hospital ICU.[65] The idea that a construction plan and air tight plastic barriers would be used for a simple filter change out is absurd. Similarly, such precautions would rarely be taken for other smaller projects such as running new communication cables through plenum areas or replacing a broken lighting fixture.

In a ducted system, such activities are unlikely to result in dust being drawn into the return air system. A plenum system, on the other hand, draws air directly from the plenum. Thus any contaminants in the plenum air will be drawn into the return air system. Dr. Woods thus concludes that the return air plenum in the ceiling, and concealed spaces or chases that connect with the plenum can thus become sources or amplification sites for pathogens.[66] If the return air plenum and chases or risers are common to other areas within an existing building, the risk of infection throughout the facility is likely to increase.[67] This risk of transporting contaminants from the plenum directly into occupied areas of the building will be further heightened if fan-powered variable air volume terminal units are installed in the return air plenum.[68]

Substantial evidence exists that the Project may result in substantial impacts to do the increased risk of plenum contaminants being transported through the building through plenum return air ducts. An EIR must be prepared to evaluate these impacts.

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[63] IS/ND at p. 44.
[64] IS/ND at p. 39.
[65] IS/ND at pp. 38-39.
[66] Dr. Woods Comments.
[67] Dr. Woods Comments.
[68] Dr. Woods Comments.

3. The IS/ND Lacks Substantial Evidence for Its Reliance on Air Filters to Reduce the Project's Pathogen Exposure Impacts Below a Level of Significance

The IS/ND also dismisses the risk of airborne disease transmission based upon the requirement that exhaust air from these rooms must be recirculated through a bank of filters with 30% and then 90% removal efficiencies. The IS/ND's reliance on filters to reduce this impact below a level of significance demonstrates the author's lack of understanding as to how the HVAC system works. The filter is located at the HVAC unit. Accordingly, any contaminants picked up by the plenum return will be carried from room to room until the return route to the HVAC unit is complete. Even then the HVAC filter required for OSHPD 3 clinics is only 90% effective, meaning that 10% of the pathogens will continue to circulate through the system. This reduces risks, but not below a level of significance.

B. Noise Impacts

The removal of the requirement for fully ducted HVAC systems may also result in substantial noise impacts resulting in the loss of patient privacy.[69] "Noise control is of high importance in the health care environment because of the negative impact of high noise levels on patients and staff and because of the need to safeguard patient privacy."[70] The ASHRAE, HVAC Design Manual for Hospitals and Clinics thus recommends ducted returns to minimize "cross-talk" wherein audible conversations are transmitted between rooms via open return connections, particularly when room partitions do not extend above the ceilings.[71]

Dr. Woods testifies that, compared to ducted return air, plenums reduce noise attenuation and increase acoustic bridging between patient exam rooms and adjacent spaces.[72] This testimony is not disputed by the IS/ND, which states that "[a]llowing the use of plenum return air for HVAC systems could potentially result in greater transmittance of sound energy between rooms in OSHPD facilities."[73]

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[69] Dr. Woods Comments.
[70] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 42, § 4.8.2.
[71] ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 97, § 9.5.2.
[72] Dr. Woods Comments.
[73] IS/ND at p. 85.

Accordingly, a fair argument exists that the proposed use of plenums may result in a loss of patient privacy. This impact must be evaluated in an EIR in order to disclose the potential impact and identify feasible mitigation to protect the privacy of patient conversations with their healthcare providers.

C. Increased Energy Impacts

Dr. Woods also testifies that the removal of the requirement for fully ducted HVAC systems will likely result in greater energy demand and costs.[74] The heat transfer from exterior plenum walls and roofs typically imposes additional thermal loads, which require additional heating and cooling capacities of the HVAC system and demand larger rates of energy consumption.[75]

The IS/ND dismisses this impact on the grounds that "the weight of literature concludes that the use of plenum return air reduces energy consumption and is energy efficient."[76] This analysis applies the wrong standard. A negative declaration is not the proper forum for weighing competing evidence. A negative declaration in lieu of an EIR is only allowed if no substantial evidence exists of a potential impact. If varying expert opinion or conflicting evidence exists regarding a potential impact, then an EIR must be prepared even if the "weight" of evidence leans toward a finding of no potential impact. Here, Dr. Wood's testimony is substantial evidence that the proposed code change may result in increased energy consumption. Accordingly, an EIR is required.

The IS/ND also misrepresents the findings in the studies it cites. The IS/ND fails to disclose that some of the experts in the 2008 report by the National Center for Energy Management and Building Technologies (NCEMBT) found that plenum returns would consume *more* fan energy than ducted returns because plenum returns are not in balance. They found that rooms with unplanned pressurizations or depressurizations put added stress on air handling equipment, increasing energy consumption.[77] The NCEMBT report found that numerous reference documents recommended using ducted returns rather than plenum returns, because fan

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[74] Dr. Woods Comments.
[75] Dr. Woods Comments.
[76] IS/ND at p. 51.
[77] W. Bahnfleth, D. McWhirter, and D. Novosel, "Impact of Air Return Strategy on Building Energy Consumption and Indoor Air Quality: Literature Review," Report NCEMBT-081010 (Alexandria, VA: National Center for Energy Management and Building Technologies, 2008) at p. 24.

suction causes a greater negative pressure across the drop ceiling and building envelope with a plenum return. The study also found that the belief by some designers that unducted return systems would consume less fan energy than ducted returns was grounded in intuition, not calculations.

The IS/ND's conclusion is also flawed because it relies on OSHPD 3 clinics complying with the energy efficiency requirements of the CalGreen Code and the California Energy Code.[78] Contrary to the IS/ND's assumption, the California Energy Code does not apply to OSHPD occupancies and OSHPD has not adopted any of the provisions of the CalGreen code.

D. Cumulative Fire Risk

Dr. Woods' testimony also provides substantial evidence that the Project will result in increased fire hazard risks. Fire safety risks will increase due to the un-ducted HVAC system's transfer of a continuous supply of oxygenated outside air into the plenum environment.[79] Plenums contain substantially more flammable material than ducts. When combined with increased airflow from the HVAC system, the risk of fire and smoke spread is increased.[80] Moreover, plenums in existing buildings are more likely to contain cables that do not meet the UL 910/NFPA 262 flame spread and smoke tests.[81] Studies have shown that for the 9 years starting in 1988 and ending in 1996, the percentage of cables failing the UL 910/NFPA 262 test increased from 10% to over 50%.[82] By allowing the introduction of a steady stream of outside air into plenum spaces, the risk of fire in these areas is increased over clinics that are entirely ducted.

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[78] IS/ND at p. 99-100.
[79] See Dr. Woods Comments.
[80] See ASHRAE, HVAC Design Manual for Hospitals and Clinics (2003) at p. 97, § 9.5.2 (recommending ducted returns because plenums can spread smoke from smoldering wiring insulation or other sources during a fire).
[81] The IS/ND argues that this does not pose a risk because occupancies are supposed to remove unused or abandoned cables. Putting aside the fact that this requirement is often ignored, this argument does not address the fact that cables that do not meet the UL 910/NFPA 262 flame spread and smoke tests are still in use in existing buildings. Accordingly, the risk is not just from abandoned or unused cables.
[82] Stanitis & Dohmann, The Evolution of Plenum Cable Fire Standards and the Impact of those Standards on Material Specification, A History of Plenum Cable Fire Safety Issues, http://www.wireville.com/news/news01.html.

Substantial evidence also exists that the proposed approval of ABS and PVC pipe would cumulatively increase the risk of allowing un-ducted plenum returns. Even at low heat, a small electrical fire in a plenum adjacent to an ABS or PVC pipe can result in the formation of hazardous hydrogen cyanide or hydrogen chloride gas that would be quickly transported to other areas of the building by the plenum return.[83]

Because substantial evidence exists that the use of plenum returns increases fire hazards, an EIR must be prepared to evaluate this risk.

IV. CONCLUSION

The CEQA Guidelines require preparation of an EIR if there is substantial evidence that any aspect of a project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial.[84] As discussed in detail above, there is substantial evidence that the Project would result in significant adverse impacts that were not identified in the IS/ND. In addition, the IS/ND fails to contain the information and analysis required by CEQA.

We urge OSHPD to fulfill its responsibilities under CEQA by withdrawing this flawed IS/ND and preparing an EIR. In this way, OSHPD and the public can ensure that all adverse impacts of the Project are identified and mitigated to the full extent feasible and required by law.

[83] See Coalition for Safe Building Materials, Comments on the Draft Environmental Impact Report for Revisions to the 2016 California Plumbing Code to Allow the Use of Perfluoroalkoxy in Dialysis Branch Lines and Plastic Pipe in Plumbing Applications in OSHPD Facilities (October 15, 2015).
[84] CEQA Guidelines, 15063, subd. (b)(1).

Thank you for your consideration of these comments.

Sincerely,

Thomas A. Enslow

TAE:ljl

Enclosures